Neutral to Slightly Undercorrected Mechanical Leg Alignment Provides Superior Long-Term Results in Patients Undergoing Matrix-Associated Autologous Chondrocyte Implantation

Johannes Weishorn[1], Johanna Wiegand[1], Severin Zietzschmann[1], Raphael Trefzer[1], Kevin-Arno Koch[1], Tilman Walker[1]

DOSB SPORTMEDIZINISCHES UNTERSUCHUNGS ZENTRUM 2021 – 2024

2020 – 2025 OFFIZIELLES KNIEZENTRUM DEUTSCHE KNIEGESELLSCHAFT SPORTORTHOPÄDIE | OSTEOTOMIE

SCIENCE PARTNER GOLD

KSOU Klinisches Studienzentrum Orthopädie und Unfallchirurgie

[1] Department of Orthopaedics
Heidelberg University Hospital
Ruprecht-Karls University Heidelberg
Heidelberg
Germany

No conflicts of interest to declare.

Background

Concomitant osteotomies around the knee are a safe and effective procedure to avoid graft overload after M-ACI.

However, an individualized target range for alignment correction has not been defined.

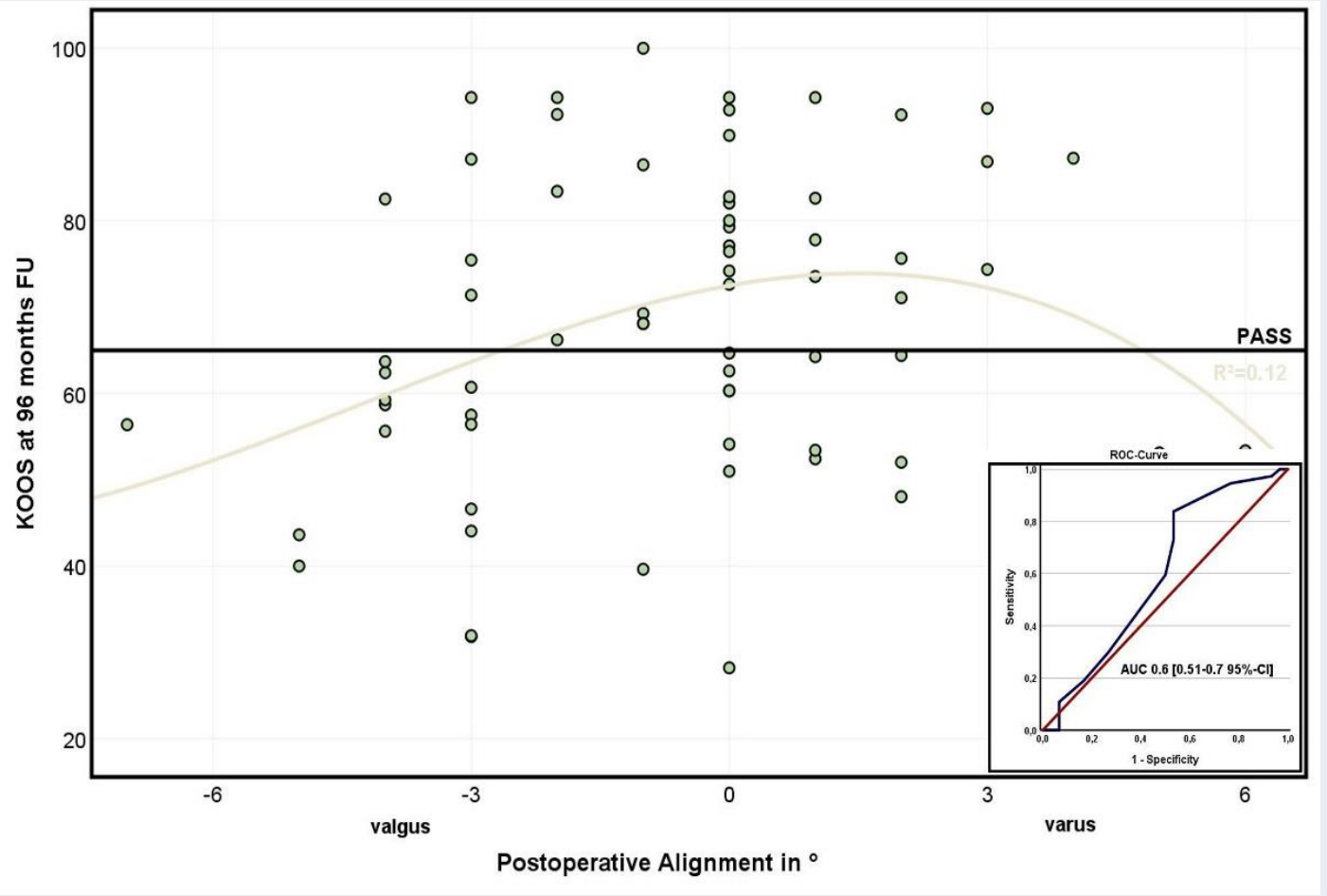
- What is the individualized target range of leg alignment to optimize long-term functional outcome (PRO) after M-ACI?

Methodik

- 101 patients 18 years of age or older with unifocal cartilage damage at the medial or lateral femoral condyle who underwent M-ACI (Novocart 3D®, TETEC AG, Germany) were included in the study
- Outcomes were assessed using the KOOS and the MOCART 2.0-Score
- Clinical outcomes were related to the Patient Acceptable Symptomatic State (PASS)
- The ICCs showed good intraobserver (0.82; 95% confidence interval [CI]: 0.74-0.9) and interobserver (0.78; 95% CI: 0.72-0.84) reliability of radiographic assessment
- The individual target range for medial and lateral defects was determined using a regression model and ROC curve

Results

- Target range of -2.5° valgus to 4.5° varus for ideal postoperative alignment (R^2=0.12, p=0.01)
- Patients within this range were more likely to achieve PASS (p=0.001)
- Target range of -2.5° valgus to 4° varus for medial defects (R^2=0.15; p=0.01) and -2° valgus and 0.5° varus for lateral defects (p=0.03).



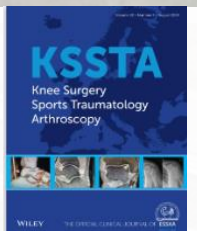
Discussion and Conclusion

- An individual range of leg alignment - whether achieved by osteotomy or physiologic alignment - should be respected in M-ACI treatment.
- A neutral to slightly undercorrected alignment favors the postoperative outcome after M-ACI.
- When planning surgery for patients with focal cartilage defects of the femoral condyle, these ranges should be recognized as critical factors.

Thank you!

johannes.weishorn@med.uni-heidelberg.de

AGA – Gesellschaft für Arthroskopie und Gelenkchirurgie
CERTIFIED SURGEON
Arthroskopie und Gelenkchirurgie



Weishorn J et al. **Neutral to slightly undercorrected mechanical leg alignment provides superior long-term results in patients undergoing matrix-associated autologous chondrocyte implantation.** Knee Surg Sports Traumatol Arthrosc.

UK HD